

PCN Number:	20231222000.1A	PCN Date:	January 09, 2024																		
Title:	Qualification of CFAB as an additional Fab site option for select LBC5 devices																				
Customer Contact:	Change Management team	Dept:	Quality Services																		
Proposed 1st Ship Date:	Mar 27, 2024	Sample requests accepted until:	Jan 27, 2024*																		
*Sample requests received after January 27, 2024 will not be supported.																					
Change Type:																					
<input type="checkbox"/> Assembly Site	<input type="checkbox"/> Design	<input type="checkbox"/> Wafer Bump Material																			
<input type="checkbox"/> Assembly Process	<input type="checkbox"/> Data Sheet	<input type="checkbox"/> Wafer Bump Process																			
<input type="checkbox"/> Assembly Materials	<input type="checkbox"/> Part number change	<input checked="" type="checkbox"/> Wafer Fab Site																			
<input type="checkbox"/> Mechanical Specification	<input type="checkbox"/> Test Site	<input type="checkbox"/> Wafer Fab Material																			
<input checked="" type="checkbox"/> Packing/Shipping/Labeling	<input type="checkbox"/> Test Process	<input type="checkbox"/> Wafer Fab Process																			
PCN Details																					
Description of Change:																					
Revision A is to correct the CFAB wafer diameter to 200mm as highlighted below.																					
Texas Instruments is pleased to announce the addition of CFAB as an additional Wafer Fab site option for the products listed in the "Product Affected" section of this document.																					
<table border="1"> <thead> <tr> <th colspan="3">Current Fab Site</th> <th colspan="3">New Fab Site</th> </tr> <tr> <th>Current Fab Site</th> <th>Process</th> <th>Wafer Diameter</th> <th>New Fab Site</th> <th>Process</th> <th>Wafer Diameter</th> </tr> </thead> <tbody> <tr> <td>DP1DM5</td> <td>LBC5</td> <td>200mm</td> <td>CFAB</td> <td>LBC5</td> <td>300mm 200mm</td> </tr> </tbody> </table>			Current Fab Site			New Fab Site			Current Fab Site	Process	Wafer Diameter	New Fab Site	Process	Wafer Diameter	DP1DM5	LBC5	200mm	CFAB	LBC5	300mm 200mm	
Current Fab Site			New Fab Site																		
Current Fab Site	Process	Wafer Diameter	New Fab Site	Process	Wafer Diameter																
DP1DM5	LBC5	200mm	CFAB	LBC5	300mm 200mm																
Qual details are provided in the Qual Data Section.																					
Reason for Change:																					
Continuity of supply																					
Anticipated impact on Form, Fit, Function, Quality or Reliability (positive / negative):																					
None																					
Changes to product identification resulting from this PCN:																					
Fab Site Information:																					
<table border="1"> <thead> <tr> <th>Chip Site</th> <th>Chip Site Origin Code (20L)</th> <th>Chip Site Country Code (21L)</th> <th>Chip Site City</th> </tr> </thead> <tbody> <tr> <td>DP1DM5</td> <td>DM5</td> <td>USA</td> <td>Dallas</td> </tr> <tr> <td>CFAB</td> <td>CU3</td> <td>CHN</td> <td>CHENGDU</td> </tr> </tbody> </table>	Chip Site	Chip Site Origin Code (20L)	Chip Site Country Code (21L)	Chip Site City	DP1DM5	DM5	USA	Dallas	CFAB	CU3	CHN	CHENGDU									
Chip Site	Chip Site Origin Code (20L)	Chip Site Country Code (21L)	Chip Site City																		
DP1DM5	DM5	USA	Dallas																		
CFAB	CU3	CHN	CHENGDU																		
Sample product shipping label (not actual product label)																					
Product Affected:																					
DRV8301DCA	LV2842XLVDDCR	SN65HVD1781DR	TPS54061DRBR																		
DRV8301DCAR	LV2842XLVDDCT	SN65HVD1781DRG4	TPS54061DRBT																		
DRV8301LDCA	LV2842YDDCR	SN65HVD1781P	TPS54140ADGQ																		

DRV8301LDCAR	LV2842YDDCT	SN65HVD1785D	TPS54140ADGQR
DRV8302DCA	LV2843DDCR	SN65HVD1785DG4	TPS54140ADRCR
DRV8302DCAR	LV2843DDCT	SN65HVD1785DR	TPS54140ADRCT
DRV8894PWP-P	LV2862YDDCR	SN65HVD1785DRG4	TPS54160ADGQ
DRV8894PWPR-P	LV2862YDDCT	SN65HVD1785P	TPS54160ADGQR
LMR14006XDDCR	SN1106046D	SN65HVD1786D	TPS54160ADRCR
LMR14006XDDCT	SN1106046DR	SN65HVD1786DR	TPS54160ADRCT
LMR14006YDDCR	SN1510170RGYR	SN65HVD1786DRG4	TPS54331DDA
LMR14006YDDCT	SN1712013DCAR	SN65HVD1786P	TPS54331DDAR
LMR14010ADDCR	SN206021ADGVR	TPS28225DR	TPS54341DPRR
LMR14010ADDCT	SN65HVD101RGBR	TPS28225DRBR	TPS54341DPRT
LMR16006XDDCR	SN65HVD101RGBT	TPS28226DR	TPS54361DPRR
LMR16006XDDCT	SN65HVD102RGBR	TPS28226DRBR	TPS54361DPRT
LMR16006YDDCR	SN65HVD102RGBT	TPS40170RGYR	TPS54531DDA
LMR16006YDDCT	SN65HVD1780D	TPS40170RGYT	TPS54531DDAR
LV2832Y3DDCR	SN65HVD1780DG4	TPS40171RGYR-P	TPS54541DPRR
LV2832Y3DDCT	SN65HVD1780DR	TPS40171RGYT-P	TPS54541DPRT
LV2832Y5DDCR	SN65HVD1780DRG4	TPS5401DGQ	TPS54561DPRR
LV2832Y5DDCT	SN65HVD1780P	TPS5401DGQR	TPS54561DPRT
LV2832YDDCR	SN65HVD1781D	TPS5401DGQT	
LV2832YDDCT	SN65HVD1781DG4	TPS5405DR	

Qualification Results

Data Displayed as: Number of lots / Total sample size / Total failed

Type	#	Test Spec	Min Lot Qty	\$\$/Lot	Test Name / Condition	Duration	Qual Device: SN0809054GC2YR	QBS Process Reference: S0809054C2PAPR	QBS Process Reference: S301044APFPRG4
Test Group A – Accelerated Environment Stress Tests									
PC	A1	JEDEC J-STD-020 JESD22-A113	3	77	Automotive Preconditioning	Level 3-280C	1/154/0	3/993/0	-
HAST	A2	JEDEC JESD22-A110	3	77	Biased HAST, 130C/85%RH	96 Hours	-	3/231/0	-
AC	A3	JEDEC JESD22-A102	3	77	Autoclave 121C	96 Hours	1/77/0	1/77/0	-
TC	A4	JEDEC JESD22-A104 and Appendix 3	3	77	Temperature Cycle, -55/150C	500 Cycles	-	3/231/0	-
TC	A4	JEDEC JESD22-A104 and Appendix 3	3	77	Temperature Cycle, -55/150C	1000 Cycles	1/77/0	3/231/0	-
TC-BP	A4	MIL-STD883 Method 2011	1	30	Post Temp Cycle Bond Pull	Wires	1/30/0	1/30/0	-
PTC	A5	JEDEC JESD22-A105	1	45	Power Temperature Cycle	1000 Cycles	-	1/45/0	-
HTSL	A6	JEDEC JESD22-A103	1	45	High Temp. Storage Bake, 175C	2000 Hours	-	3/135/0	-
Test Group B – Accelerated Lifetime Simulation Tests									
HTOL	B1	JEDEC JESD22-A108	3	77	Life Test, 125C	1000 Hours	-	1/77/0	-
HTOL	B1	JEDEC JESD22-A108	3	77	Life Test, 140C	653 Hours	-	-	3/231/0
ELFR	B2	AEC Q100-008	3	800	Early Life Failure Rate, 150C	48 Hours	-	-	3/2399/0 (Note1)

	EDR	B3	AEC Q100-005	3	77	NVM Endurance, Data Retention, and Operational Life	2000 H0urs	N/A	3/135/0	-
Test Group C – Package Assembly Integrity Tests										
	WBS	C1	AEC Q100-001	1	30	Bond Shear (Cpk>1.67)	Wires	1/30/0	-	-
	WBP	C2	MIL-STD883 Method 2011	1	30	Bond Pull (Cpk>1.67)	Wires	1/30/0	-	-
	SD	C3	JEDEC JESD22-B102	1	15	Solderability (>95% Lead Coverage)	Pb and Pb-Free	-	-	-
	PD	C4	JEDEC JESD22-B100 and B108	3	10	Physical Dimensions (Cpk>1.67)	--	-	-	-
	LI	C6	JEDEC JESD22-B105	1	50	Lead Integrity	Leads	-	N/A	-
Test Group D – Die Fabrication Reliability Tests										
	EM	D1	JESD81	-	-	Electromigration	--	-	-	-
	TDDb	D2	JESD35	-	-	Time Dependant Dielectric Breakdown	--	Completed Per Process Technology Requirements	-	-
	HCI	D3	JESD80 & 28	-	-	Hot Injection Carrier	--	Completed Per Process Technology Requirements	-	-
	NBTI	D4	-	-	-	Negative Bias Temperature Instability	--	Completed Per Process Technology Requirements	-	-
	SM	D5	-	-	-	Stress Migration	--	Completed Per Process Technology Requirements	-	-
Test Group E – Electrical Verification Tests										
	HBM	E2	AEC Q100-002	1	3	ESD – HBM	2500 V	-	1/3/0	-
	CDM	E3	AEC Q100-011	1	3	ESD – CDM	1000 V	-	1/3/0	-
	LU	E4	AEC Q100-004	1	6	Latch-up	(Per AEC Q100-004)	-	1/6/0	-
	ED	E5	AEC Q100-009	3	30	Electrical Distributions	Cpk>1.67 Room, Hot, & Cold	-	3/90/0	-
	MQ	PacTech Note (2)				per automotive requirements		Pass	-	-

A1 (PC): Preconditioning:

Performed for THB, Biased HAST, AC, uHAST, TC & PTC samples, as applicable.

Note (1): 1 discountable failure caused by LPD1 pin stress in E-test.

Note (2): This device goes through a special flow where the wafers go to PacTech for Au plating after DBUMP

Ambient Operating Temperature by Automotive Grade Level:

Grade 0 (or E): -40°C to +150°C

Grade 1 (or Q): -40°C to +125°C

Grade 2 (or T): -40°C to +105°C

Grade 3 (or I): -40°C to +85°C

E1 (TEST): Electrical test temperatures of Qual samples (High temperature according to Grade level):

Room/Hot/Cold : HTOL, ED

Room/Hot : THB / HAST, TC / PTC, HTSL, ELFR, ESD & LU

Room : AC/uHAST

Green/Pb-free Status:

Qualified Pb-Free (SMT) and Green

Qual ID: 20160815-118891

Qualification Results

Data Displayed as: Number of lots / Total sample size / Total failed

Type	#	Test Spec	Min Lot Qty	SS/Lot	Test Name / Condition	Duration	Qual Device: LM5176QWPRQ1	QBS Product Reference: LM5175QWPRQ1	QBS Process Reference: S301644APFPRG4	QBS Package Reference: TH57530QWPRQ1	QBS Package Reference: TP592518QWPRQ1	QBS Package Reference: TP592632QWPRQ1 PG1.9
Test Group A – Accelerated Environment Stress Tests												
PC	A1	JEDEC J-STD-020 JESD22-A113	3	77	Automotive Preconditioning	Level 3-260C	1/All/0	3/All/0	3/All/0	3/All/0	2/All/0	1/All/0
HAST	A2	JEDEC JESD22-A110	3	77	Biased HAST, 130C/85%RH	96 Hours	1/77/0	3/231/0	3/231/0	3/231/0	2/154/0	1/77/0
AC	A3	JEDEC JESD22-A102	3	77	Autoclave 121C	96 Hours	1/77/0	3/231/0	3/231/0	3/231/0	1/77/0	1/77/0
TC	A4	JEDEC JESD22-A104 and Appendix 3	3	77	Temperature Cycle, -65/150C	500 Cycles	1/77/0	3/231/0	3/231/0	3/231/0	1/77/0	1/77/0
TC-WBP	A4	MIL-STD883 Method 2011	1	30	Post TC Bond Pull	per MIL-STD 883 Method 2011	1/30/0	Pass	Pass	Pass	Pass	Pass
PTC	A5	JEDEC JESD22-A105	1	45	Power Temperature Cycle	1000 Cycles	N/A	N/A	1/45/0	1/45/0	-	-
HTSL	A6	JEDEC JESD22-A103	1	45	High Temp Storage Bake 175C	500 Hours	1/45/0	3/231/0	1/45/0	1/45/0	1/77/0	1/77/0
Test Group B – Accelerated Lifetime Simulation Tests												
HTOL	B1	JEDEC JESD22-A108	3	77	Life Test, 150C	500 Hours	1/77/1*	-	-	-	-	-
HTOL	B1	JEDEC JESD22-A108	3	77	Life Test, 150C	408 Hours	-	3/231/0	-	-	1/77/0	-
HTOL	B1	JEDEC JESD22-A108	3	77	Life Test, 140C	653 Hours	-	-	3/231/0	-	-	-
ELFR	B2	AEC Q100-008	3	800	Early Life Failure Rate, 125C	48 Hours	-	-	3/2399/0	3/2398/0	-	-
EDR	B3	AEC Q100-005	3	77	NVM Endurance, Data Retention, and Operational Life	-	-	3/231/0	-	-	-	-

Type	#	Test Spec	Min Lot Qty	SS/Lot	Test Name / Condition	Duration	Qual Device: LM51762PWPQRQ1	QBS Product Reference: LM51762PWPQ1	QBS Process Reference: S391044APFPRG4	QBS Package Reference: TH57539QPWPQRQ1	QBS Package Reference: TP582518QPWPQ1	QBS Package Reference: TP58252QPWPQ1 PG1.0
Test Group C – Package Assembly Integrity Tests												
WBS	C1	AEC Q100-001	1	30	Bond Shear	Cpk>1.67	1/30/0	Pass	Pass	Pass	Pass	Pass
WBP	C2	MIL-STD883 Method 2011	1	30	Bond Pull	Cpk>1.67	1/30/0	Pass	Pass	Pass	Pass	Pass
SD	C3	JEDEC JESD22-B102	1	15	Surface Mount Solderability	Pb Free	1/15/0	Pass	Pass	-	Pass	Pass
SD	C3	JEDEC JESD22-B102	1	15	Surface Mount Solderability	Pb	1/15/0	-	-	-	-	-
PD	C4	JEDEC JESD22-B100 and B108	3	10	Physical Dimensions	Cpk>1.67	3/90/0	Pass	Pass	-	Pass	-
LI	C6	JEDEC JESD22-B105	1	50	Lead Integrity	Leads	N/A	-	-	-	-	-
LI	C6	JEDEC JESD22-B105	1	24	Lead Pull	Leads	1/45/0	-	-	-	Pass	-
Test Group D – Die Fabrication Reliability Tests												
EM	D1	JESD61	-	-	Electromigration	-	Completed Per Process Technology Requirements	-	-	-	-	-
TDOB	D2	JESD35	-	-	Time Dependant Dielectric Breakdown	-	Completed Per Process Technology Requirements	-	-	-	-	-
HCI	D3	JESD60 & 28	-	-	Hot Injection Carrier	-	Completed Per Process Technology Requirements	-	-	-	-	-
NBTI	D4	-	-	-	Negative Bias Temperature Instability	-	Completed Per Process Technology Requirements	-	-	-	-	-
SM	D5	-	-	-	Stress Migration	-	Completed Per Process Technology Requirements	-	-	-	-	-
Test Group E – Electrical Verification Tests												
HBM	E2	AEC Q100-002	1	3	ESD - HBM - Q100	3000 V	1/3/0	-	-	-	-	-
CDM	E3	AEC Q100-011	1	3	ESD - CDM	750V	1/3/0	-	-	-	-	-
LU	E4	AEC Q100-004	1	6	Latch-up	(Per AEC Q100-004)	1/6/0	-	-	-	-	-
ED	E5	AEC Q100-009	3	30	Electrical Distributions	Cpk>1.67 Room, Hot, and Cold	3/90/0	Pass	Pass	Pass	Pass	-

A1 (PC): Preconditioning:
Performed for THB, Biased HAST, AC, uHAST, TC & PTC samples, as applicable|

Ambient Operating Temperature by Automotive Grade Level:
Grade 0 (or E): -40°C to +150°C
Grade 1 (or Q): -40°C to +125°C
Grade 2 (or T): -40°C to +105°C
Grade 3 (or I) : -40°C to +85°C

E1 (TEST): Electrical test temperatures of Qual samples (High temperature according to Grade level):
Room/Hot/Cold : HTOL, ED
Room/Hot : THB / HAST, TC / PTC, HTSL, ELFR, ESD & LU
Room : AC/uHAST

Green/Pb-free Status:
Qualified Pb-Free (SMT) and Green

Note: * 1 unit EOS at ESD cells, discounted (QEM-EVAL-1808-00103).

TI Qualification ID: 20180201-124641

Qualification Results

Data Displayed as: Number of lots / Total sample size / Total failed

Type	Test Spec	Min Lot Qty	SS/Lot	Test Name / Condition	Duration	Qual Device: TPA3255D2DDV	Qual Device: TPA3255D2DDV	QBS Process Reference: S301044APFPRG4
PC	JEDEC J-STD-020 JESD22-A113	3	77	Automotive Preconditioning Level 3	Level 3-260C	3/1676/0	-	3/1619/0
HAST	JEDEC JESD22-A110	3	77	Biased HAST, 130C/85%RH	96 Hours	2/154/0	-	3/231/0
AC	JEDEC JESD22-A102	3	77	Autoclave 121C	96 Hours	3/231/0	-	3/231/0
TC	JEDEC JESD22-A104 and Appendix 3	3	77	Temperature Cycle, -65/150C	500 Cycles	3/231/0	-	3/231/0
HTSL	JEDEC JESD22-A103	1	45	High Temp Storage Bake 175C	500 Hours	3/135/0	-	1/45/0
HTOL	JEDEC JESD22-A108	3	77	Life Test, 140C	480 Hours	3/231/0	-	3/231/0
ELFR	AEC Q100-008	3	800	Early Life Failure Rate, 125C	48 Hours	-	-	3/2400/0
HBM	AEC Q100-002	1	3	ESD - HBM	3000 V	1/3/0	-	-
CDM	AEC Q100-011	1	3	ESD - CDM	500 V	-	1/3/0	-
LU	AEC Q100-004	1	6	Latch-up	(Per AEC-Q100-004)	1/6/0	1/6/0	1/6/0
ED	AEC Q100-009	3	30	Electrical Distributions	Cpk>1.67	2/60/0	1/30/0	1/90/0

A1 (PC): Preconditioning:

Performed for THB, Biased HAST, AC, uHAST, TC & PTC samples, as applicable.

Ambient Operating Temperature by Automotive Grade Level:

Grade 0 (or E): -40°C to +150°C

Grade 1 (or Q): -40°C to +125°C

Grade 2 (or T): -40°C to +105°C

Grade 3 (or L): -40°C to +85°C

C3 (Solderability):

Pb & Pb-Free Solderability data from MSPREL-12-UCD8220.04001

E1 (TEST): Electrical test temperatures of Qual samples (High temperature according to Grade level):

Room/Hot/Cold: HTOL, ED

Room/Hot: THB / HAST, TC / PTC, HTSL, ELFR, ESD & LU

Room: AC/uHAST

Green/Pb-free Status:

Qualified Pb-Free (SMT) and Green

Qual ID: 20170518-121969

For questions regarding this notice, e-mails can be sent to Change Management team or your local Field Sales Representative.

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